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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,511	06/09/2005	Keun-Kyu Song	21C-0329	3156
23413	7590	10/26/2007		
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			EXAMINER ULLAH, ELIAS	
			ART UNIT 2812	PAPER NUMBER
			MAIL DATE 10/26/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/538,511

Applicant(s)

SONG ET AL.

Examiner

Elias Ullah

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 1-3 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-18 is/are allowed.
- 6) ☒ Claim(s) 4, 5, 7 and 8 is/are rejected.
- 7) ☒ Claim(s) 6 and 9-15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 6/9/2005.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This office action is in response to an election restriction requirement filed on 9/20/2007.

#### ***Election/Restrictions***

Applicant's election without traverse of claims 4-18 in the reply filed on 9/20/2007 is acknowledged.

#### ***Claim Rejections - 35 USC § 103***

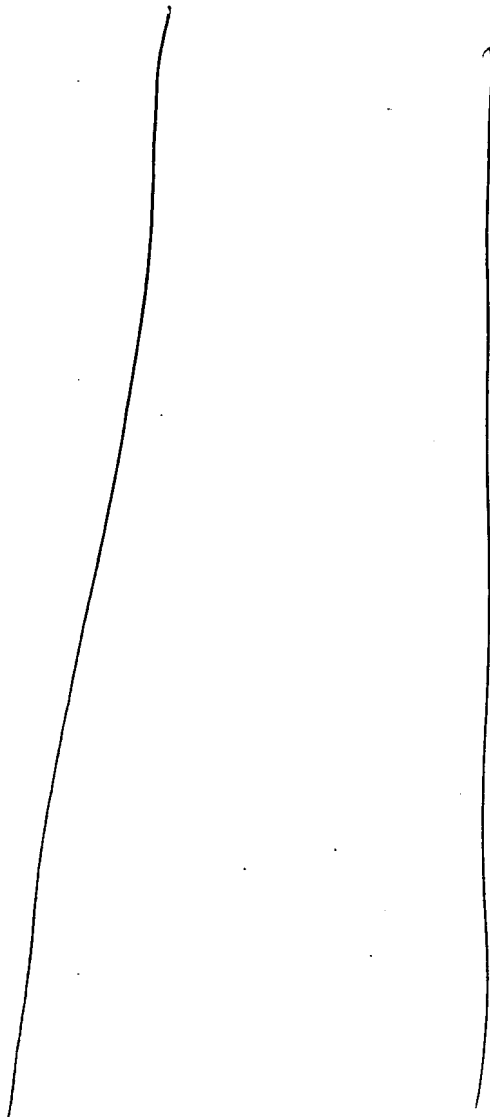
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-5 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yates et al. (US 2002/0173156) in view of Muraoka et al. (US 2003/0108823),

With regard to claims 4-5, and 7-8 Yates et al. teaches a method of forming a pattern, forming a photoresist pattern on a layer formed on a substrate; etching the layer using the photoresist pattern using as a mask to form a pattern on the substrate; and removing the photoresist pattern using a stripping composition including an acetic acid and an ozone gas included in the acetic acid as a bubble form and the ozone gas in the acetic acid (Fig. 2); wherein the removing the photoresist pattern spraying the stripping composition onto the photoresist pattern to wet the photoresist pattern and rinsing the photoresist pattern [0024]. But Yates et al. fails to teach novolak on a layer.

Muraoka et al. teaches a novolak type resist layer formed on the substrate [0043]. In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to formed a photoresist pattern layer including novolak of Yates et al. because novolak type resist is easy to remove from a semiconductor substrate after a device pattern.



***Allowable Subject Matter***

Claims 6, 9-15 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following subject matter is allowable: a concentration of the ozone gas included in the acetic acid is about 80,000 to about 90,000ppm; the spraying the stripping composition further comprises moving the substrate in a first direction during spraying the stripping composition onto the photoresist pattern; and moving the substrate in a second direction opposed to the first direction during spraying the stripping composition onto the photoresist pattern; a pH of the stripping composition is about 1.6 to about 5; the layer comprises a gate layer having a first gate wiring layer and a second gate wiring layer, and wherein the method further comprises etching the second gate wiring layer using the photoresist pattern as a mask to form a second gate wiring layer using the photoresist pattern as a mask to form a second gate wiring layer pattern; removing the photoresist pattern using the stripping composition and etching the first gate wiring layer to form a first gate wiring layer pattern. Claims 12-15 are dependent on claim 11.

Claims 16-18 are allowed.

**REASONS FOR ALLOWANCE**

The following is an examiner's statement of reasons for allowance: with respect to claims 16-18, there is no prior art available or obvious motivation to combine elements of prior art which teach method of manufacturing a TFT substrate for an LCD device, the method comprising: forming a first gate wiring layer and a second gate

wiring layer on a substrate; forming a first photoresist pattern including novolak; etching the second gate wiring layer using the first photoresist pattern as an etching mask; removing the first photoresist pattern using a stripping composition including an acetic acid and an ozone gas included in the acetic acid as a bubble form; etching the first gate wiring layer to form a gate pattern having a gate line, a gate pad and a gate electrode; forming a gate insulation layer on the substrate having the gate pattern; forming a semiconductor layer and a doped amorphous silicon layer on the gate insulation layer; forming a semiconductor layer pattern and an ohmic contact pattern by etching the semiconductor layer and the doped amorphous silicon layer; forming a conductive material on the semiconductor layer pattern and on the ohmic contact pattern; forming a data line, a source electrode and a drain electrode by etching the conductive material; forming a passivation layer on the data line, the source electrode and the drain electrode; forming a second photoresist pattern including novolak on the passivation layer; etching the passivation layer to form a contact hole partially exposing the drain electrode; removing the second photoresist pattern using a stripping composition including an acetic acid and an ozone gas included in the acetic acid as a bubble form; and forming and etching transparent conductive material layer to form a pixel electrode.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elias Ullah whose telephone number is (571) 272-1415. The examiner can normally be reached on weekdays, between 8AM-5PM.

Application/Control Number:  
10/538,511  
Art Unit: 2812

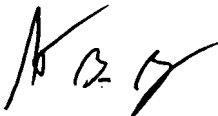
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MICHAEL LEBENTRITT can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

E. Ullah, October 23, 2007.

SCOTT B. GEYER  
PRIMARY EXAMINER

 10/25/07